Science

Compost Critters

Objective

To teach students that nature can "recycle" its own resources.

Activity Description

Students will search for and observe some of nature's recyclers at work, learning what role each plant or animal plays in the recycling process.

Materials Needed

- An outdoor area, such as a yard, park, or garden, that offers access to some of the following: rocks, trees (dead and living), leaf litter, mushrooms
- One or two teacher's aides or parents to help facilitate the outdoor adventure (optional)
- Several sheets of drawing paper and pencils or crayons per student
- One clear viewing container with holes

Key Vocabulary Words

Decay
Mushroom
Millipede
Fungi
Lichen

Duration

Outdoor expedition:
1 hour
In-class follow-up:
30 minutes

Skills Used

Observation/classification
Motor skills

Activity

Step 1: Visit your chosen outdoor area prior to the class trip in order to make sure it is suitable for viewing nature's recyclers. Scout out four specific "stations" for the students to visit, including a live tree, an old decomposing log, a large rock (or board) in the soil, and a leaf-covered patch of soil. To draw insects to a specific spot, you might want to plant a log or board in the soil several days in advance.

Step 2: Discuss recycling with the students and explain the following concepts (refer to the Teacher Fact Sheet titled *Composting* on page 109 for background information):

- Why we recycle and why nature also needs to recapture the value of its organic waste.
- What kinds of "trash" get "recycled" in nature.
- Who recycles these materials. Discuss the plants and animals, such as snails, slugs, beetles, millipedes, earthworms, fungi, pillbugs, snowbugs, mushrooms, and lichen that perform nature's recycling work.

Step 3: Divide the class into small groups of three to four students. Explain that the students are now adventurers on a mission to locate and study nature's recyclers at work. Remind students that it's very important to observe, but not touch or disturb the recyclers or their habitat.

Step 4: Lead the students to your predetermined outdoor area and stop at each of the four stations. At each station, first lead a discussion (see below) and then give each group

of students the chance to get up close and make individual observations. A list of suggested topics and discussion questions for each station follows:

Station #1–Live Tree

- Ask students what makes the tree grow. Where are its roots? Where does it get its food from?
- Will the tree live forever?
- Are its leaves falling to the ground?

Station #2–Dead, Decaying Log

- Ask students how this tree is different from the live one.
- Have them touch and smell its bark. How is it different than the live bark? Is it dry or damp?
- Do the students see evidence of the wood being eaten? By what?
- Have the students look in the crevices and cracks for any of nature's recyclers at work. If they see ants, spiders, millipedes, mushrooms, etc., ask them the following questions:
  - — Is it a plant or animal?
  - — What's its name?
  - — How does it move? How many legs does it have?
  - — What color is it?
  - — Why is it living under this dead log? What does it eat?
  - — How many of these creatures are living together?
- If it's possible (and safe), capture a few of these recyclers in your clear container and let the students view them up close. You may want to impose an item limit to prevent too much disruption for the critters. Students could draw the recyclers they see in nature or wait until they return to the classroom and draw from memory. Make a point of returning the creatures safely to their homes after the viewing is over.

Station #3–Large Rock or Board

- Have the students watch as you carefully lift the rock from its position. Ask students to look at what's underneath it.
- What's it like under the rock? Is it dark and moist?
- Can the students see any of nature's recyclers at work here? If they do see life, ask them the same questions as above:
  - — Is it a plant or animal?
  - — What's its name?
  - — How does it move? How many legs does it have?
  - — What color is it?
  - — Why is it living under this rock or board? What does it eat?
  - — How many of these creatures are living together?

Station #4–Leaf Litter and Soil

- Have the students use their hands to dig through the leaves and into the soil.
- Ask them to compare these leaves to the leaves still on the live tree. How are they different? Are these leaves older? Are they wet or dry?
- Have the students look for evidence of nature's recyclers; again, identify and discuss any animals or plants that they find.
- Ask the students to feel and smell the soil. How does it compare to the dead log they visited earlier?

Step 5: Before returning to the classroom, visit the live tree station again. Ask students to think again about where this tree gets its food. Discuss how the decaying log, busy creatures, and moist, rich soil all play a role in keeping the tree alive.

Assessment

1. Back in the classroom, pass out paper and colored pencils or crayons to the students. Have each student draw one of the recyclers he or she saw outside. Ask each student to verbally describe to the class how this creature moves, what it's called, and what recycling role it plays in nature.
2. Ask the students how they are like nature's recyclers. Do they recycle anything at home? How does it get reused?
3. Have the students draw a tree in different stages of its life, showing the tree 1) budding, 2) in full growth, 3) with leaves falling, 4) as a dead tree, having fallen as a log and decaying back into the earth, and 5) as a new tree growing from the soil.

Enrichment

1. Engage students in a role-playing activity. Have students pretend that they are different recyclers (ants, millipedes, worms, mushrooms, spiders). Ask the students how these animals or plants moved or behaved. Have the students imitate this behavior.
2. Study nature's recyclers in the winter by collecting some leaf litter, bringing it inside, and warming it with a lamp. Dormant recyclers, such as millipedes, ants, spiders, and worms will come to life under the heat.
3. Conduct another nature walk, this time giving each student a recyclable paper bag. Have them collect dead leaves, sticks, nuts, or other teacher-approved items on their walk. When students return to the classroom, discuss what role these items have in nature and in the natural cycle of life. Is the item dead or alive, what is it called, is there any evidence of nature's recyclers at work? Help them glue or tape these items on a piece of construction paper and display them. Have the students perform leaf rubbings by placing a leaf under a piece of paper and coloring over it to reveal its shape and texture. Ask the students to explore how each leaf is similar or different from others.